General Inventory Guidelines

The intent of the 1997 NRI is to efficiently develop a trending data base that is scientifically credible, relevant, timely, and serves as a powerful foundation for future Resource Inventory activities. Therefore, data are being collected for the same Primary Sampling Units (PSUs) and points as those for the 1992 NRI, at the locations established during the 1992 NRI, and using protocols established for the 1992 and previous NRIs (unless noted otherwise). The guidelines for the 1992 NRI included, "The final exact location used for the 1982-87-92 data collection is the location that is compiled and digitized for the georeferencing phase of the 1992 NRI."

Similar guidelines must be followed for the 1997 NRI. This means, therefore, that it is the responsibility of 1997 NRI data gatherers to ensure that all data contained in the final 1997 NRI data base are for the exact same location. **This includes data for each of the four years 1982, 1987, 1992, 1997, and the digitized PSU/point locations.**

Modules

Instructions for the 1997 NRI are grouped into modules. The General Inventory Guidelines presented here apply to all of the modules. The modules have instructions for specific data elements and groups of data elements; 3 modules have instructions for PSU data elements and 11 modules provide instructions for point data elements.

Quality Assurance

Quality is an integral part of the NRI process. Quality assurance has been built into all data collection activities and every facet of the inventory. Examples of measures taken to ensure quality at the national level include:

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and data gatherers receive the same guidance and technical interpretations, and that these answers become part of the permanent documentation for the 1997 NRI. **Failure to follow this procedure can result in erroneous interpretations of the instructions or biases that will affect the quality of the NRI data.**

For issues related to imagery and other data sources, ancillary materials, and equipment, ICCS leaders will contact the Resources Inventory Support Branch.

ICCS leaders should direct questions regarding resources inventory policy to the Resources Inventory Division (NHQ).

Imagery

The 1997 NRI is designed to obtain the preponderance of data through remote sensing, specifically, interpretation of aerial photographs. Data collection via remote sensing techniques is more efficient and less costly than physically visiting sample locations to gather data. Field visits to the sample sites will occur only under special circumstances; for example, to collect data if imagery for remote sensing is lacking or of poor quality, to determine if a wetland loss has actually occurred, or to field check data for quality. Because many data elements in the 1997 NRI deal with crops and cultivation, it is important to obtain imagery that captures the growing season, if possible.

PSU Support Map

For the 1997 NRI an automated 1997 PSU Support Map must be produced for every PSU using the 1997 NRI PSU_Tool software and the current PSU spatial data base (provided by the NCG Center). See Section B of PSU Module I for a discussion of why it is necessary to develop this new automated support map. Because PSU features may be complex or PSU support maps from previous inventories may not be complete, it may be necessary to use one or more mylar overlays to properly delineate PSU features as described below.

The new automated 1997 PSU support map is used to verify digitized PSU boundaries and point locations and to correlate the digitized PSU with the historical PSU data. Specific instructions are provided in PSU Module I. This map is also used when recording 1997 data in PSU Modules II and III and in point modules. For some PSUs, it is advantageous to prepare one or more additional overlays to show the location of changes from 1982 to 1987, from 1987 to 1992, and from 1992 to 1997. **Most of these changes and PSU features should already be delineated and labeled on materials developed for previous inventories, and these previous PSU support maps should be in the PSU file folder.** The number of different overlays required depends upon the complexity of changes. For complex situations, there might be separate change maps for urban and built-up and for other features.

The PSU support maps are used to delineate, label, and measure the following features:

Farmsteads and Ranch Headquarters—Label each area **F** [PSU Module II].
Small Built-up Areas—Label each area **SB** [PSU Module II].
Large Urban and Built-up Areas—Label each area **UB** [PSU Module II].
Private Roads not included in built-up areas—Label **PV** [PSU Module II].
Public Roads not included in built-up areas—Label **PB** [PSU Module II].
Railroads not included in built-up areas—Label **RR** [PSU Module II].

Large Streams—Label each **LS** [PSU Module III].
Small Streams—Label each **SS** [PSU Module III].
Stream Shoreline Characteristics—Label with appropriate cover category [PSU Module III]
Large Waterbodies—Label each **LW** [PSU Module III].
Small Waterbodies—Label each **SW** [PSU Module III].
Habitat Composition and Configuration—Label with appropriate cover category [Point Module V]
Overland Flow—Label with appropriate cover category [Point Module VI].
Wind Erosion Direction—Label arrow with wind [Point Module VIII]
Saline Deposits on Agricultural Land—Label each area **SA** [Point Module XI].

Delineate and label the areas using a permanent-ink pen. Each PSU support map (map or overlay) shall be identified by FIPS code, PSU ID, and year(s). The automated 1997 PSU support map generated by the PSU_Tool software will contain the FIPS code and PSU ID, but make sure that it is clear what year(s) is delineated on this map. Support materials that depict windbreaks (from previous NRIs) should be retained in the PSU support file for future inventories even though windbreaks are not being studied as part of the 1997 NRI.

Personal Digital Assistants (PDAs)

The NRI is a massive undertaking that involves hundreds of NRCS inventory specialists collecting data on hundreds of thousands of locations across the United States. Computer-assisted survey collection tools were introduced for the 1992 NRI to improve data collection efficiency and data quality. Because much of the data had to be collected away from office computers, paper worksheets were used as an interim step to entering the inventory data. Errors on these worksheets and in the data entry process, in addition to delays in implementing computer checks for data accuracy, resulted in numerous pages of edits and discrepancies that had to be addressed by the Iowa State University Statistical Laboratory.

For the 1997 NRI, NRCS personnel will be equipped with Personal Digital Assistants (PDAs) for completing the data collection process. PDAs will replace the expensive, time-consuming procedure of data entry via paper worksheets used in the 1992 NRI. PDAs are small, hand-held, portable appliances that serve as digital worksheets for use at remote data collection centers, in offices, or at field sites. Consequently, the PDA is available at the time and place of actual data collection so that problems can be immediately detected and easily corrected by the data gatherer.

Apple's Newton MessagePads were chosen for the 1997 NRI. Data recording is performed using a stylus on the PDA touch pad allowing the user to select from a choice list or to write a number or word. After data are collected and entered for a few PSUs, the results are uploaded via a modem directly to the Iowa State University Statistical Laboratory.

The software automatically determines which inventory questions should be answered, whether the answers are compatible and consistent, and which questions can be made invisible or locked as a result of previous responses. Because the flow in questions is controlled, there is no ambiguity, omissions are almost impossible, and material that does not pertain is not displayed. Additional software for the PDA permits data quality checks to be performed. The flexibility of the PDA and the software allows changes and improvements in rules to be easily incorporated in the course of the inventory.

The use of PDAs will make the 1997 NRI essentially paperless. This will eliminate most data errors, greatly reduce processing time, and result in tremendous cost savings. Additionally, utilization of PDAs will facilitate the transition into a continuous inventory process.

Notes

The PDA software allows for notes to be recorded for each data element. The note is associated with the data element and can be used to explain unusual situations. During the edit and review processes, notes will be helpful in interpreting data entries. Notes become a part of the NRI data base and are valuable for future inventories.

Selecting PSUs for Data Gathering

The Personal Digital Assistants (PDAs) are used to transmit data back and forth between a data gathering location and the NRI data base server at Iowa State University. Data gatherers must use the PDA to download PSUs from the server before data can be entered for those PSUs. PSUs can be selected by state and county, by individual PSU, and through the use of a wildcard character (%); after identifying a state and county of interest, individual PSUs are selected and downloaded. Data gathers only have access to PSUs assigned to their data gathering location.

The PDA temporarily stores PSU and point data for the selected samples while a data gatherer is identifying, measuring, making determinations, and recording these observations. Small numbers of PSUs should be stored at any one time. **It is recommended that no more than 10 PSUs be kept in the PDA at any one time;** otherwise, operational performance of the PDA may suffer. The PDA is limited to 25 PSUs at any one time and prevents downloading more PSUs than will fit this limit.

PSUs can exist in the PDA in four different status:

NS	Not started
IP	In progress
UC	Unable to complete
CO	Complete

NS is the status of a PSU as it initially resides in the server at Iowa State University and before data entry in the PDA. The status of a downloaded PSU changes to **IP** as soon as data entry is initiated for the particular PSU. Upon completion and checking of all data elements, the status of the PSU automatically becomes **CO**. Status **UC** is assigned **by the data gatherer** to those PSUs that need to be returned to the server prior to completion.

PSUs existing in the PDA and having status NS, UC, or CO are available for transmittal back to the server. PSUs with status IP cannot be returned to the server; they must be completed (CO) or changed to status UC before they can be transmitted.

PSUs returned to the server at Iowa State University with status CO are not again available to the PDA. They are complete.

Regular downloading, completion, and return of PSUs to the server is a necessity. PSUs that cannot be completed promptly should be changed to status UC and returned to the server.

The Statistical Laboratory (Iowa State University) will periodically issue notices regarding use of the PDAs and the NRI data base server. These messages will address modifications in protocols, suggestions for efficient utilization of the system, and other related matters.

Confidentiality

NRCS policy is that the locations of National Resources Inventory (NRI) samples are confidential information. Locations of NRI Primary Sample Units (PSUs) represented in either hardcopy or digital form are available exclusively for use by NRCS staff conducting resources inventory activities authorized by the Resources Inventory Division.

Editing Data for 1982, 1987, and 1992

For the 1992 NRI, a great amount of effort was devoted to editing historical data so that the final data base could be credibly utilized to determine real and significant changes in resource condition and to rigorously analyze implications of these changes and effects of proposed actions and programs. For the 1997 NRI, review of historical data is just as important as for the 1992 NRI, but should result in less changing of historical data than was necessary in 1992 because of the 1992 efforts.

A data locking feature has been implemented within the PDA software. This means that the data gatherer must unlock the PDA screen for the specific PSU and appropriate inventory year(s) to change historical data for one, two, or three of the earlier inventory years. This locking will result in edit procedures running in less time because historical data will only be checked if the data for a year are unlocked to make needed edits.

Even though the PDA contains the data locking feature, the most important principle of data gathering for the 1997 NRI was stated at the beginning of the instructions:

> *…it is the responsibility of 1997 NRI data gatherers to ensure that all data contained in the final 1997 NRI data base are for the exact same location. This includes data for each of the four years 1982, 1987, 1992, 1997, and the digitized PSU/point locations.*

Ancillary Materials

The reference materials listed below need to be assembled for use as ancillary information as part of the 1997 NRI data gathering process. Some of these references do not apply to all states, such as the Range Handbook. Other local and regional reference materials will also be needed.

Files

PSU file folder (maps, notes, and other materials from 1982, 1987, and 1992 NRIs and special inventories)
FSA/NRCS/SWCD case files

Manuals/Guides
Agronomy Manual
Irrigation Manual or Guide
Field Office Technical Guide
Engineering Field Manual Chapter 9 (Drainage)
Classification of Wetlands and Deepwater Habitats of the United States [USFWS/OBS-79/31, December 1979]
Forest Cover Types, F.H. Eyre, Society of American Foresters, 1980

Handbooks
Agriculture Handbook 537 (USLE)
Range Handbook
National Soils Handbook, section 603, SCS-SOI-5, and 8000 series codes
AG Handbook 296 (MLRA)
National Handbook of Conservation Practices (URL – http://www.ftw.nrcs.usda.gov/nhcp_2html)

Maps
1982, 1987, and 1992 PSU support maps
Hydrologic Unit maps
USLE “R” Value map
WEQ “C” Value map
1997 MLRA map
Published or unpublished soil maps from soil surveys
USGS topographic quadrangle maps
Wetland Inventory Map

Keys
Indexes for maps and photos
A detailed photo key for each crop, land cover, and cultural practice (Instructions will be provided before the photo keys are prepared.)
Interpretation key
A detailed vegetation calendar for each crop and land cover (RISB is developing a process to create an automated version of the vegetative calendars.)

Lists
FSA CRP lists
Approved County Highly Erodible Lands (HEL) lists
Approved State Prime Farmland list
Approved County List of Hydric Soils